HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

Standing Committee on Fisheries and Oceans

FOPO • NUMBER 023 • 1st SESSION • 41st PARLIAMENT

EVIDENCE

Monday, February 6, 2012

Chair

Mr. Rodney Weston

Standing Committee on Fisheries and Oceans

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● (1530)

[*English*]

The Chair (Mr. Rodney Weston (Saint John, CPC)): I call this meeting to order. I would like to welcome members back to the committee for the first time in the new year.

I'd like to take this opportunity to welcome our guests this afternoon and to thank them for taking the time to come and speak to the committee.

Mr. Beaupré, I believe you're going to lead. I'll open the floor to you. I know you've been here many times, so I don't have to go through the procedures with you. Please proceed whenever you're ready. If you want to, please introduce your associates and proceed.

Mr. Guy Beaupré (Director General, Aquaculture Management Directorate, Department of Fisheries and Oceans): Thank you.

As you said, Mr. Chairman, I'm Guy Beaupré, and I'm the director general of aquaculture management in the Department of Fisheries and Oceans. It is a pleasure for us to appear before the committee today.

[*Translation*]

I will make my presentation in English, but do not hesitate to ask questions in French if you like.

[*English*]

I'd first like to introduce my colleagues. Mr. Jay Parsons is the director of the aquaculture science branch. Mr. James Smith is the director—

The Chair: Excuse me, Mr. Beaupré. We're just having a little difficulty with translation. One moment, please.

Thank you, Mr. Beaupré. Please proceed.

Mr. Guy Beaupré: With me are Mr. James Smith, director of certification and sustainability policy in my group, the aquaculture management directorate. Mr. Alistair Struthers is acting director for aquaculture policy, also in my group. Alistair is replacing Monsieur Eric Gilbert, who unfortunately could not appear today.

We have provided you with a presentation. My intention was to go over the presentation, not necessarily page by page, but to provide you with an overview to leave more time for your questions afterwards. So I'll tell you which pages I'm referring to as I go along.

The first two slides provide an introduction. We're here at your request to provide a briefing on salmon aquaculture and how it is regulated in Canada as well as in a number of international jurisdictions with respect to regulatory requirements and the state of research and implementation of closed containment.

The committee is also seeking to understand better the activities of the North Atlantic Salmon Conservation Organization, known as NASCO, in relation to salmon aquaculture. Specifically, the members would like to know how Canada and other member countries of NASCO are meeting their goals of minimizing the potential adverse impacts of aquaculture on wild Atlantic salmon stocks. It would also like an overview of the ad hoc review group on aquaculture introductions and transfers and transgenics, including the work of the ad hoc group, its conclusions and findings with respect to Canada's management of aquaculture as well as an understanding of how this is consistent with NASCO agreements.

We will pleased to provide the committee with this information.

On slide 3 we provide you with an outline of the presentation. The presentation provides you with regulatory measures in each of Canada, Norway, Scotland, Chile, and the United States. There's a table to compare these regulatory measures as well as regulatory-related research programs in each of the countries. There is also a recent review of the international regulatory and management environment for salmon aquaculture conducted under NASCO.

Of course, closed containment is an element addressed within each of the areas I've mentioned.

Slide 4 provides you with a bit of a general view of aquaculture in the world. Canada, Norway, Scotland, and Chile together account for about 98% of the world aquaculture salmon production, so almost all of it. Each country has established regulatory and research programs that align with their jurisdiction and legislative requirements and programming environments as well as any aquaculture and specific fisheries legislation.

Overall, however, each country is managing for a similar range of environmental matters, including protection of native salmon through protection from escapes and containment of genetic material, and also interactions with other wild stocks, disease, pests, pathogens and pest treatments, and of course habitat. Canada also manages for predator control and marine mammal interactions, and in British Columbia for noise and light interactions with the aquatic ecosystems.

On page 5 of the presentation is a table that tries to provide you with a summary of the main regulatory and management measures. These are the highlights, of course, and we have focused on the key themes of interest in aquaculture, which you will see in the left column, including sea lice, disease and parasite transmission, escapes, and so on. These are the elements for which we are comparing the regulatory and management measures in each of the countries.

● (1535)

Now, unless the committee wishes so, I don't intend to go through each of the columns, because there's quite a lot of information. Generally I would say that what comes out from the table is that all of the countries follow international codes, guidelines, and protocols that are common to us—for example, ISO 234 or FAO protocols. We all generally have the same overall goals in managing aquaculture. The differences would relate to particular environments in a particular country.

On slide 7, we wanted to provide these jurisdictional comparisons by major themes to give the committee some context that I hope will be helpful in understanding activities in Canada. I would note that in general, with respect to the major categories that are in the left column, with the exception of closed containment aquaculture, all of the jurisdictions have pretty well the same kinds of requirements in place from, as I said, the policy or regulatory point of view.

More specifically, for the environmental stressors like sea lice through introductions and transfers, each jurisdiction has established control measures of one type or another. With respect to habitat, each has some sort of survey, monitoring, assessment, and permitting scheme in place to allow the protection of habitat. For classification and zoning of areas, each jurisdiction has its own planning, siting, and management requirements. In Canada, of course, we work with provincial governments on this. Similarly, each area is engaged in various modes of research to help understand effects and exposure to environment...and also environment medication.

In fact, everything that NASCO is asking the countries we look at is in this particular table. As you can see in the table, there are no requirements for closed containment, but operational constraints are leading the industry to go in that direction. There are, as you know, a number of projects that we can come back to that are looking at closed containments. Of course, as the committee probably knows as well, in Canada, the United States, and Chile we use land-based aquaculture in our hatcheries.

Again looking at slide 7, while there is no requirement to use closed containment, each jurisdiction makes use of recirculating aquaculture systems for the purpose of hatcheries, as I just said. However, for larger grow-out operations, the picture is more varied and raises questions internationally about the economics of closed-containment systems. We'll come back to that later.

Certainly the challenges relate to, in our view, the economic viability of closed containment. It seems to be clear and compelling that in the two major international salmon aquaculture production jurisdictions, that's certainly the case.

In slide 8 we switch to a review of NASCO measures related to aquaculture. I should mention to the committee that although I was the head of the Canadian delegation at NASCO for the years 2002 to 2010, I am not the head of delegation any more. However, a lot of the issues are relevant to when I was the head of delegation.

NASCO was established to conserve, restore, enhance, and manage wild Atlantic salmon through international cooperation. The members are, in addition to Canada, Denmark, on behalf of Greenland and the Faeroe Islands; the European Union; Norway; the Russian Federation; and the United States. Iceland was for a long time part of NASCO, but three years ago they got out of NASCO for financial reasons, saying that they intended to come back at some point.

Of course aquaculture organizations have not been accredited to NASCO, but a salmon aquaculture industry liaison committee was established to provide an international forum for discussion of issues of mutual interest but also to make recommendations on aquaculture issues.

● (1540)

Also related to aquaculture and NASCO is the Williamsburg resolution, which is a resolution to help minimize the impacts of aquaculture introductions, transfers, and transgenics on wild salmon, using a precautionary approach.

Slide 9 talks about NASCO's focus area reports. The slide gives a little bit of history about what happens there. As you probably know, there is no commercial fishery for wild Atlantic salmon. NASCO focuses on coordinating research among the countries as well as providing guidelines on how to manage the stock, the habitat, or the potential impacts from aquaculture.

About three years ago members of NASCO decided to do these focus area reports. The idea was actually to try to bring together best practices or guidelines on how to manage wild salmon, how to manage habitat, and how to deal with the potential impacts of aquaculture. The council has yet to discuss what to do with all the focus area reports from the various countries. As I said, for habitat and for management, NASCO has produced guidelines. For the focus area reports on aquaculture, next steps have yet to be determined.

In our focus area reports—this is the purpose of slide 10—we have shown how aquaculture is managed in Canada, including the legislative, regulatory, and management aspects of how we work with the provinces. We have also shown how we are meeting our NASCO goals and commitments. Within the NASCO process, there were comments on this particular report from an ad hoc committee that included NGOs. Thirty-five ENGOs accredited in NASCO as well as members of the different countries are trying to bring together the common elements of these reports to understand how countries as a whole manage the potential impacts of aquaculture on wild salmon. This is the stage we are at right now. The next NASCO meeting I think is in the first week of June. I'm sure countries will continue to consider what the next steps are with regard to that particular report.

This concludes my presentation, Mr. Chairman. I would be glad to answer your questions.

● (1545)

The Chair: Thank you very much, Mr. Beaupré.

For questioning, we will start with Mr. Kamp.

Mr. Randy Kamp (Pitt Meadows—Maple Ridge—Mission, CPC): Thank you, Mr. Chair.

Thank you, gentlemen, for appearing. I appreciate this helpful information.

Canada, Norway, Scotland, and Chile do almost all of the Atlantic salmon aquaculture. Is that correct? The United States also does a little bit or they dabble?

Mr. Guy Beaupré: You said the United States?

Mr. Randy Kamp: Do the United States do much as well?

Mr. Guy Beaupré: They do a much smaller proportion.

Mr. Randy Kamp: Are we the only country that has this combination of provincial and federal jurisdiction? That's my question, and then I guess you probably know where I'm going. I want to know what you think about the advisability—or necessity, perhaps—and pros and cons of an aquaculture act in Canada. I'm assuming these other jurisdictions, which aren't set up the way we are as a federation, would have some kind of national legislation that governs how aquaculture is done, whereas we have both provincial and federal jurisdiction.

It's a general question. How is that working? In your opinion, how does it compare with these other jurisdictions? In your opinion, would there be some value in an aquaculture act in Canada?

Mr. Guy Beaupré: Thank you for your question.

I think, if I'm not mistaken, that in these other countries—Norway, Scotland, and Chile—they have aquaculture acts. Norway and Scotland certainly do, I'm pretty sure, but they also have different jurisdictions involved in the management of aquaculture.

I know that in Norway, for example, they have county jurisdictions and larger county jurisdictions that manage part of the rivers as well as the fjords. To a certain extent, it's comparable to the different jurisdictions we have here. We work with the provinces and sometimes also with municipalities in managing aquaculture.

I really can't tell you if it is that much more complex in these countries. I think it's fairly comparable in terms of the different levels and how they need to manage.

I'm not at liberty to say if an aquaculture act would simplify things or not. I think there is the view in the industry that an aquaculture act would be very important in bringing together a framework for management and also for the different regulations.

I don't know, Jamie, if there's something you can add....

● (1550)

Mr. James Smith (Director, Certification and Sustainability Policy, Aquaculture Management Directorate, Department of Fisheries and Oceans): Thanks, Guy.

As Guy said, all those other countries have national legislation that covers aquaculture specifically to some degree, whether it's through counties or municipalities or some sub-levels of government underneath that, which provide some level of complexity, as we have here in Canada. I know that the Canadian industry has looked at those jurisdictions and has concluded that those systems are perhaps more streamlined than our system.

I think that's the task in front of us right now: to take a closer look at it to see whether that really is the case and how it could work for the Canadian environment.

Mr. Randy Kamp: Yes, certainly we've had witnesses tell us that they think this is something the Government of Canada should be working on, and that caught our interest as the standing committee, of course, so I just wondered if you saw any significant pros or cons —either way—in moving in that direction.

Would anyone else care to weigh in?

Mr. Guy Beaupré: Right now, for example, we are dealing with regulations on fish pathogens and pest treatment. We are bringing together the four federal departments involved in dealing with that issue, as well as the regulations from the provinces, in the Atlantic provinces, in regard to how this all comes together. When we have that framework completed, it will provide how we manage in Canada without the aquaculture act per se. The aquaculture act would have to refer to some of this legislation anyway, so in the end what is important, I think, is to have a framework and a set of legislation presented in a way that is understandable and that allows proper management of the industry.

The complexity of those systems in Canada is not different from what it is in other countries. In Norway, for example, you have the Department of Fisheries, and the people who manage aquaculture are in the Department of Fisheries; however, at NASCO, the representatives from Norway are from their Ministry of the Environment. For Scotland, for example, when they come to NASCO, Scotland sits behind the representative from the EU, so they have to understand their own system and agree among themselves.

I think each country has a set of fairly complex regulations and legislation to deal with aquaculture. Probably other aspects would be complex as well, but certainly in aquaculture it doesn't seem to be easy in terms of the overall picture we have in each of the countries.

Mr. Randy Kamp: How much does it cost us, annually, to participate in NASCO?

Mr. Guy Beaupré: I think the membership is paid in pounds, and I think it's around £140,000 annually.

Mr. Randy Kamp: You said that its mission or mandate is to manage wild salmon, but you also said there are no commercial fisheries for wild salmon, so what's it managing besides aquaculture?

Mr. Guy Beaupré: There is currently no commercial fishery, but if the stock were to come back, there probably would be a commercial fishery.

NASCO is putting a lot of energy into understanding and promoting the science to understand what happens to salmon at sea. There is a major project to research what happens to salmon when they go to sea and a number of them don't come back. We are trying to understand why they don't come back, so the countries have provided their expertise as well as contributions—and industry, as well, has been contributing—to do the research at sea and understand the results, both from the perspective of the science as to where we are, but also as to what this means in terms of management.

NASCO also provides the various countries with, I would say, coordinated and agreed-upon views on management measures or precautionary approach measures to managing salmon as well as to improving habitat, which is particularly important in the case of salmon returns and in managing other potential negative impacts on salmon.

● (1555)

Mr. Randy Kamp: Thank you.

The Chair: Thank you.

Mr. Donnelly.

Mr. Fin Donnelly (New Westminster—Coquitlam, NDP): Thank you, Mr. Chair, and welcome, Monsieur Beaupré, and your team.

I have a few questions to do with cuts and with sea lice. I wanted to start off with this. According to the Department of Fisheries and Oceans, you sent a detailed reply to a question that I put forward on the order paper that cuts will affect the department's scientific capacity, and that includes the sustainable aquaculture program.

I understand there will be at least three scientists from the department that will be let go. The document also mentioned that there are 73 scientists in the program, along with 16 contract scientists. I'm wondering if any of the contract scientists will be let go, or if they're all being kept. Then also, how did DFO determine which scientists would be let go?

Mr. Guy Beaupré: I'll ask our colleague from the science branch to answer the question.

Dr. Jay Parsons (Director, Aquaculture Science Branch, Department of Fisheries and Oceans): I'm not familiar with the exact response that you received. In the recent announced reductions for the department, there were some cuts to one of our main aquaculture science programs, the aquaculture collaborative research and development program, or ACRDP. The funding level for that program was cut in half, just approximately 50%, and ten full-time equivalent positions were lost across the country in that program.

The department has been taking various steps in terms of how to identify those particular cuts. Where there were vacant positions available in those program areas, they were certainly identified as the first areas that would be reduced. As well, if there were no vacant positions, the staff complement in that particular program area was examined in terms of whether there were any people available to... that would be affected in that particular program area. So in some cases, there were no options in terms of the availability of staff in that particular program in certain regions. Subsequently those staff have been identified.

I know that the department is also doing whatever steps it can to be able to identify opportunities, for those affected employees, for looking for other opportunities within the department or within the government.

As for your specific reference to “contract”, I'm not really sure, as I said, what information was provided to you or the particular context. Could I ask if you have a bit more information? Was it contract employees for a specific program or was it just generally that there are number of contract employees?

Mr. Fin Donnelly: Yes: I believe it was to DFO, and I'm not sure if it was specific to the aquaculture program, per se, or the department in general.

Dr. Jay Parsons: Okay.

Mr. Fin Donnelly: It identified that three scientist positions would be lost, but didn't identify whether the contract positions would be retained or not.

Dr. Jay Parsons: I'm not sure if they're directly related. As I understand a contract position, somebody is hired for a specified period of time for a particular project. That would very much be a time-limited arrangement that the department would have with any contracted individuals.

● (1600)

Mr. Fin Donnelly: I guess with less funding, you will have less flexibility to take on contracts on science.

Dr. Jay Parsons: Yes: it would be very much tied to the availability of funding, and often tied to what we would call “B-based” funding, or funding that would be coming in for a very specific purpose for a very specific period of time. That would be one of the options we'd have in order to be able to engage people on those types of projects.

Mr. Fin Donnelly: All right. Thanks.

I'd like to switch gears here—I have limited time, and I have to try to get through a number of issues—and take a look at sea lice for a second. Obviously the issue of sea lice, especially on the west coast, has been intense. So I'm wondering how long the department has been monitoring the situation of sea lice—essentially the intensification of sea lice from aquaculture fish farms and its impact on wild salmon. How long has the department been involved in that? Are we talking 20 years? Do we have records that go back 20 years, 10 years...?

Dr. Jay Parsons: We'd have to get back to you with specific information in terms of monitoring in general and how long we've known about sea lice. I mean, sea lice are naturally occurring organisms that we know have been around for literally thousands, if not tens of thousands, of years. We're certainly well aware of its occurrence in the environment, and for many years have noted that it occurs on a number of marine organisms on both the east coast and the west.

More recently and more specifically, there has been a dedicated monitoring program in the Broughton region. I can't remember the exact date, but from approximately early 2000 there has been a dedicated monitoring program for un-farmed and wild juveniles in the Broughton region.

Mr. Fin Donnelly: I guess what I'm wondering is why the department hasn't moved or shifted to closed containment, or seemed to require closed containment earlier.

Mr. Guy Beaupré: We don't require closed containment—

Mr. Fin Donnelly: Sorry. In general, why hasn't the department...? You're looking at pilot projects of closed containment; that started a short time ago.

Mr. Guy Beaupré: In Canada as well as in the other aquaculture countries, there have been both research and projects to see whether aquaculture of Atlantic salmon can be done in closed containment. So far, there have not been projects that have successfully shown that aquaculture of Atlantic salmon can be done profitably in closed containment. I know that such research has been done in Norway, as well as in Canada and in Scotland.

Also, we in the department have done a financial study, because one of the elements that is particularly important is whether it is possible from a financial point of view to go into closed containment, apart from all of the other issues that are not addressed yet and that would prevent growing Atlantic salmon to a commercial size. The study that we have done goes back a couple of years. It was done at a time when Atlantic salmon prices on the market were very high, and even at that time, our studies showed that it would not be financially sustainable to do closed containment aquaculture. In a situation like today, when prices are very low, there would be even less of a possibility to do that.

But the research continues. There are a number of scientific aspects related to closed containment for which there are no solutions yet—maybe Jay can speak to this—that really prevent industry from moving in that direction. As I said at the beginning, we use closed-containment measures in our hatcheries to raise smolts, but as you want to grow a fish to a heavier weight—maybe a kilogram—it becomes more complicated.

● (1605)

Mr. Fin Donnelly: Thank you.

The Chair: Thank you.

We will go to Mr. Allen.

Mr. Mike Allen (Tobique—Mactaquac, CPC): Thank you very much, Mr. Chair.

Thank you to our witnesses for being here today.

I'd like to focus my questions on the focus area reports and the responses, and I'd like to understand those a little better.

There is an apparent contradiction in one of the slides, where you talk about how the focus area report demonstrates how we are meeting our NASCO goals and commitments, but then the second bullet mentions that the ad hoc committee members expressed concerns in all of the reporting areas, stating that measures, in their opinion, were not sufficiently clear or were not adequate.

Can you reconcile those two bullets for me?

Mr. Guy Beaupré: Thank you.

Yes. The purpose of the focus area report—and I should say that, as you know, there are six or seven countries around the table—was that NASCO wanted to be able, when the reports were produced, to bring them together and to basically get from the reports some guidelines or some directions. So member countries decided that the reports should be done in a format that is comparable from one country to the next; otherwise we could end up with a 20-page report and a 200-page report—impossible to compare.

So we had a fairly strict format that we followed for each of the three focus area reports: fish management, habitat, and aquaculture. The process was that after the reports were written, committees were established to critique those reports. Basically these committees were composed of representatives from NASCO member countries and also NGOs. The criticisms of the reports really were the points of view of those committees, which were brought to the NASCO general council in 2010.

I think if you read other reports as well you would find the same conclusion. Our report addressed very clearly how in Canada we deal with issues like sea lice or escapes and all the elements that you find in the table on page 5, which are the main elements NASCO is dealing with. Partly because of the format and length of the report we can go into a lot of details. So in my view, the committee that was established to examine the reports found that maybe the reports were lacking in terms of details that they wanted to see in the report. As I said, we haven't had that conversation at the NASCO council so far. We have provided a response to the criticism that the ad hoc committee has provided, and we have provided further details. Right now NASCO has the focused area report, it has the criticism from the ad hoc committee, and it has Canada's response to those criticisms.

Overall as a package, if we wanted to get from these three documents one document that was really showing what we do in Canada and other countries to prevent the negative impact of aquaculture, we'd get a good product.

Mr. Mike Allen: You talked about the ad hoc committee and earlier focus reports. How often do you go through these focus area reports?

The other thing I'd like to ask is on this ad hoc working group. It says the comments were compiled but they're not vetted or challenged. So I guess anybody could say anything they wanted to say. Who are on these groups? You have the countries on these groups as well as accredited environmental groups. How many of those, and who would they be? Which environmental groups are on there?

Mr. Guy Beaupré: From Canada it was a representative from the Department of Fisheries and Oceans, not a delegate from the NASCO delegation. I know that there was a representative from the U.S., a representative from the NGO group....

Was there another one?

● (1610)

Mr. James Smith: Yes. There was a representative from Norway, one from the U.S., one from Canada, one from the NASCO secretariat, and from the group of accredited ENGOs in the meeting there were actually two. The original terms of reference were to have one ENGO represent that entire accredited group, but actually there were two.

Mr. Mike Allen: Who was that?

Mr. James Smith: There was one from the ASF and there was one from.... I beg your pardon, Mr. Allen, I can't remember the name of the group. It was one of the conservation groups from the U.K., but I can't remember which one, exactly.

Mr. Mike Allen: Was it a salmon conservation group like the Atlantic Salmon Federation?

Mr. James Smith: It was a salmon and trout conservation group, yes.

Mr. Mike Allen: Okay, thank you.

We did get a letter in after Bill Taylor had given his testimony here at committee. He talked a lot about escapes when he was at the committee, especially on the index river, the Magaguadavic River in New Brunswick, obviously. He said that in 2010 the North Atlantic Salmon Conservation Organization reviewed the records. They are a party, so I'm assuming they must have been part of this. When he talked about the general goals, he said that Canada's performance was inadequate under the Williamsburg resolution, basing it on sea lice but also in terms of the escapes.

When I look in your table, it's interesting, because you look at Chile, which must notify of escapes and recapture efforts required, as opposed to some of the others, where you have reporting but you have escape response plans. What are the differences? Are our escape response plans recapture mechanisms? What are the differences between the countries on those?

Mr. Guy Beaupré: Monsieur, you're right; the escape response plan depends on the size of the escape and where it is. If there is a possibility to recapture the fish it will be done.

This is the responsibility of the province, so we work with the provincial governments on these particular matters.

Mr. Mike Allen: So back to the point that Mr. Kamp was asking, what are the challenges because of the jurisdiction issues we have in Canada, as opposed to other countries that manage this by themselves? Does that cause problems? Is that part of the reason why maybe we are not as successful in meeting these objectives as other countries? I realize the other countries are having their problems as well.

Mr. Guy Beaupré: I wouldn't say so. On the Canadian delegation at NASCO there are provincial representatives. They understand the environment in which NASCO functions and how Canada participates. Before we go to NASCO we have consultations with the provincial governments as well as stakeholders to prepare our positions.

We understand how it works in Canada; this is the way things are right now, so we function with that. In other jurisdictions, Norway or Scotland, as we said before, they have other levels of jurisdiction as well, so they have to deal with those kinds of environments in the same way we do.

Is it slower? I don't know. If we have systems in place that address those issues we have protocols if there's an escape—who to contact and what to do next. So these protocols are already in place and we work together on making sure that when there is an escape there is information that is flowing and there are decisions that can be taken in terms of what are the next steps.

Mr. Mike Allen: Thank you. I think my time is up.

The Chair: Thank you, Mr. Allen.

Mr. MacAulay.

Hon. Lawrence MacAulay (Cardigan, Lib.): Thank you very much, Mr. Chairman.

Welcome, gentlemen.

I understand that last month the minister announced $800,000 for the Namgis First Nation's closed containment. Can you give me an update on that facility and what the status is right now and what the funding would be used for in this project? To follow on the previous question, should there be more of this or less of this?

Mr. Guy Beaupré: I'll ask Alistair to provide you with the details on the $800,000 for the Namgis First Nation.

Mr. Alistair Struthers (Team Leader, Innovation, Aquaculture Management Directorate, Department of Fisheries and Oceans): I don't have a specific update as to exactly where they are, but I believe the vast majority of the funding is being used to purchase capital equipment—tanks, water filtration systems, and that type of equipment.

Hon. Lawrence MacAulay: Would the investment be to find new information, or is it more of an investment in making work?

● (1615)

Mr. Alistair Struthers: It's not so much a make-work project; it is very much a pilot-scale facility to test the pre-commercial scale of Atlatic salmon production.

Hon. Lawrence MacAulay: So this will be different from other projects that you have funded previously.

Mr. Alistair Struthers: Yes, and it would certainly be the largest type of project that we have funded along those lines. There are a number of other contributing partners as well; it's not just DFO.

Hon. Lawrence MacAulay: Mr. Struthers, what is being focused on in terms of innovation in your department right now? How will these projects affect the future of salmon farming? Is innovation in this area more the duty of the government or the private sector, or both? How do you see it?

Mr. Alistair Struthers: I think it's actually a duty of both the sectors. It's a duty of the government to help innovation. Certainly from DFO's perspective with the aquaculture innovation program, the focus of that has really been to encourage pre-commercial-scale development of different technologies. It's helping industry adopt those technologies.

There are a whole host of innovative techniques or innovative projects the department is helping or contributing to. We have closed containment, but we are also looking at the whole spectrum of sustainable aquaculture production, from cage-based culture to shellfish culture as well.

Hon. Lawrence MacAulay: It seems to me there is a fair difference.... It looks as though fish has to be more expensive before it's profitable. Are you striving for technology that would finish the fish more quickly? Is there a possibility that this can happen more quickly or more efficiently in closed containment than it can in the open-net concept? What are we doing? Or does it just have to be a more expensive fish in order to make—

Mr. Alistair Struthers: No. That's one of the premises behind closed containment, that it can shorten the grow-out cycle of the fish.

Hon. Lawrence MacAulay: Does it?

Mr. Alistair Struthers: That is one of the goals of this project with the Namgis First Nation. In theory, it should, but it's never been demonstrated in real, commercial-scale production. That's the whole goal of this project.

Hon. Lawrence MacAulay: Does the density have a major effect? Can you comment on that?

Mr. Alistair Struthers: The density is higher. The density is approximately—

Hon. Lawrence MacAulay: No, but does more and more density affect the growth a lot, or is there a point where it does affect the growth?

Mr. Alistair Struthers: At the projected densities they're looking at, it shouldn't affect the growth. We're looking at approximately three times the density of open-net pens. With any growth trials we've seen for fish at 15 kilograms per cubic metre versus 50 kilograms per cubic metre, the growth is approximately the same.

The biggest controlling factor there is a stable year-round temperature.

Hon. Lawrence MacAulay: In fact you're telling me you can produce three times the amount of fish in the closed containment that you can in the open net.

Mr. Alistair Struthers: Within that cubic metre of water, yes, we can. The reason they're striving for increased density is to be able to take advantage of the increased cost of the capital assets. As you know from previous testimony at this committee, the costs for a closed-containment system versus a net-pen system are significantly different. You're looking at—

Hon. Lawrence MacAulay: It's more expensive?

Mr. Alistair Struthers: —about seven and a half times.

Hon. Lawrence MacAulay: Of course we have to have the technology, because Chile and other countries have it, and if something happens, we have to know what we're doing if we're going into this area. Would that be one of the reasons for putting a lot of money into this?

Mr. Alistair Struthers: It's certainly one of the reasons. Canada, in my opinion, is a world leader in the use of closed-containment technology, certainly from the perspective of recirculating systems for juvenile production. That's the hatch reproduction.

Now we're being asked to look at how this technology would be applied for the entire grow-out cycle, and that is the big question. It has never been done. Well, it's never been done successfully. It's been attempted numerous times, and there have been a number of financial failures.

● (1620)

Hon. Lawrence MacAulay: Okay. I would like you to comment on eco-certification. Is this available to farmed salmon—either closed containment or open net?

Mr. Alistair Struthers: I'll pass that over to James Smith, who will have a comment, I believe.

Mr. James Smith: There are programs available now for farmed salmon, for either open net or closed containment.

Hon. Lawrence MacAulay: Do you see that it is easier to obtain the certification for a closed-containment facility than for an open-net one?

Mr. James Smith: It isn't necessarily.

There are a number of programs available. There are differences and similarities among individual programs. They all require looking at the same elements, and they would apply equally to an open-net or a closed-containment facility. How they can meet the conditions really depends on the nature of the operation and the specifics of the operation.

Hon. Lawrence MacAulay: So you would say, at the price today, that we are a piece away from having the closed-containment facility being economically feasible—

Mr. Alistair Struthers: At the price today—

Hon. Lawrence MacAulay: —in terms of where we are and what we know.

Mr. Alistair Struthers: Certainly, based on the analysis the Department of Fisheries and Oceans has conducted, it's not economically feasible given the selling price of salmon today.

Hon. Lawrence MacAulay: Thank you very much.

The Chair: Thank you, Mr. MacAulay.

Mr. Sopuck.

Mr. Robert Sopuck (Dauphin—Swan River—Marquette, CPC): Thank you very much.

Early on in here, Inka Milewski gave us a talk about the benthic environment underneath net-pen aquaculture. She showed the effects of the deposition on the benthic invertebrates and the benthic environment, which made sense to me. I assume there is a way to rotate the net pens away from areas. How long does it take for the seabed to return to the original condition if the net pen has been removed?

Dr. Jay Parsons: The short answer is that it depends on the environment you're in. It also depends on the amount of organic matter that has accumulated underneath the nets. But certainly the farm benthic environments can recover in anywhere from months to years, depending on the amount of material, as I say.

Most of the operations in Canada are on some type of production cycle that does allow for a break between production cycles to allow the benthic environment to recover. That break can be anywhere from three months to a year, depending on the environment and the jurisdiction.

Mr. Robert Sopuck: So there are data that chart the change in the benthic environment from when the net-pen is removed to when it's fully recovered. Do you have that information?

Dr. Jay Parsons: Well, I would have—

Mr. Robert Sopuck: The department has, I mean; I'm not asking for it now—

Dr. Jay Parsons: No, no—

Mr. Robert Sopuck: But your department has it?

Dr. Jay Parsons: No, it would be more so with the provincial governments.

Mr. Robert Sopuck: In terms of escapes, given that these are not wild fish, that they're bred to grow in an aquaculture situation, what is the survival rate for fish that escape into the wild environment and not only have to compete with wild salmon but also deal with predation?

Dr. Jay Parsons: Again, I'll start off, and certainly others may jump in if they want to.

That's a hard question to answer definitively. As far as I'm aware, there haven't been extensive studies that have looked at this, but the information I'm aware of certainly suggests that there are quite high mortalities in escaped salmon after they've escaped and/or moved out of the areas, depending on the time of year.

Mr. Robert Sopuck: Yes, I'd actually agree with that, because young fish going from fingerling to smolt are actually learning as they go about how to cope with the wild environment, an experience that a farmed fish would never have, so I would expect their mortality rate to be quite high. I'm satisfied with that.

In terms of the effect of aquaculture on wild salmon stocks, what's the department's...? Is the jury still out? I was struck by a report that was sent to me from the department. It was a quick report talking about the 2010 Fraser River sockeye returns being the best since 1913. Aquaculture has been going on in B.C. since 1985. I know that circumstantial evidence isn't necessarily cause and effect, but is the department comfortable that aquaculture and wild salmon stocks can co-exist?

● (1625)

Mr. Guy Beaupré: I think generally we are, yes.

Mr. Robert Sopuck: Okay.

I have one last question regarding closed containment aquaculture. One thing that came out is that closed-containment aquaculture basically can be conducted almost anywhere that has the right power costs, access to land, and access to markets. Is it fair to say that a move to closed-containment aquaculture will really spread the aquaculture industry throughout North America, possibly to the detriment of coastal communities?

Mr. Guy Beaupré: There's one big factor that would be at play in establishing a closed-containment aquaculture plant, and that would be the price of land. A closed-containment plant would require quite a large piece of land. If you're close to the urban centres, you're going to pay more for your land than you would pay near the coast, so that could be a big factor. Access to power generation is also expensive, as is the access to water.

I know that many times with various projects it's important to be able to use gravity to get the water to flow to the plant and out of the plant rather than having to pump it, because that will increase the costs.

Mr. Robert Sopuck: Thank you very much.

The Chair: Mr. Donnelly, are you going to lead off or is Ms. Doré Lefebvre?

Mr. Fin Donnelly: Go ahead.

The Chair: Ms. Doré Lefebvre.

[*Translation*]

Ms. Rosane Doré Lefebvre (Alfred-Pellan, NDP): Thank you, Mr. Chair.

Thank you for joining us today.

If the industry was asked to switch from the current aquaculture system, where a net is used, to a closed-containment aquaculture system, how much time do you think the transition would take?

Mr. Guy Beaupré: It is very difficult to answer that. Actually, we still don't know what measures need to be taken to make the production viable. Among the factors we must consider are current costs and market prices. The Department of Fisheries and Oceans conducted the analysis I was talking about earlier when the price of salmon was very high. Even at that time, the projects that were analyzed were not financially viable. The prices are currently much lower. There is a 40% difference in price, and that makes the transition even less viable.

The time required to go from a deep-water system to a closed-containment system greatly depends on financial viability. It's an investment. The important thing is knowing at what price the transition would become viable. However, several technical issues must be resolved before we can complete that analysis.

Ms. Rosane Doré Lefebvre: If the prices were to increase and reach a level where switching to a closed-containment aquaculture system would be viable, would a five- or ten-year transition period be possible?

Mr. Guy Beaupré: That may be possible in the long term. I will ask Jay to talk about the various scientific issues, such as the presence of CO2 in closed facilities. Those are technical issues, and I have no idea how long it would take to resolve them.

[*English*]

Dr. Jay Parsons: As Guy has pointed out, there are not only questions around the economic viability, there are also still a number of technical issues that need to be explored for the full life-cycle production. For example, as Alistair Struthers mentioned earlier, the assumption is that we grow fish at a much higher density. Certainly small-scale projects have indicated that fish grow as fast at around 50 kilograms per cubic metre as they do at lower densities. But we really don't know if we're able to do this day in and day out over several production cycles, and whether the fish will stay healthy over that period of time. So there are also a number of fish health and fish health welfare issues that do need to be explored, for example, through pilot-scale studies that look at whether the fish can indeed perform consistently over one production cycle to another, in order to give that certainty to growers that there is lower risk in growing fish in closed-containment systems.

As well, from a technology perspective, certainly the technology is developing. It's been used for hatchery production for a number of fish, and it does offer the potential for a relatively stable environment. But again, to assure growers and farmers that you can do this consistently year after year, and that the technology can hold up production cycle after production cycle such that you don't get catastrophic failures....

Because the risk of a catastrophic failure in a closed-containment type of system is much higher than in an open ocean type of system, where you have a much more controlled environment in terms of temperature, in terms of your oxygen, and a number of other variables in terms of dealing with the wastes and things like that.

There are still a lot of technical and biological assumptions that need to be investigated on a commercial scale over several production cycles to demonstrate not only the economic viability but also the technical viability to ensure there's a lower level of risk there.

● (1630)

[*Translation*]

Ms. Rosane Doré Lefebvre: Thank you.

[*English*]

The Chair: Thank you very much.

Mr. Hayes.

Mr. Bryan Hayes (Sault Ste. Marie, CPC): Thank you, Mr. Chair.

You talked about the global comparisons. I noticed there was mention that both Chile and Scotland have viewed them as not economically viable by government or industry.

Are those quantifiable reports available? Did you view them yourself, or did you make that statement because that's what these countries said? Have you actually seen the data, and is that data available to be shared with this committee?

Dr. Jay Parsons: I'm not sure if we've actually seen the direct data ourselves so much as the reports we've received from colleagues in other countries. But we could certainly look into what other type of information might be available to us or not.

Mr. Bryan Hayes: You yourselves have made the statement that it's not economically viable, so I'd really like to see the comparative analysis between what our officials are saying versus what these other country officials are saying, just to see how wide in scope it actually is.

Dr. Jay Parsons: We can certainly look into that and see what information is available.

Having said that, certainly, as the committee is aware, salmon is a commodity. It's a product that's marketed internationally. The prices are international prices. Certainly the price drivers would be comparable for any country wanting to investigate a closed containment type of system. Other production-type costs would probably be comparable in other countries in terms of feed costs and oxygen and other costs related to the purchase of land and equipment.

So it's not unreasonable to think that there wouldn't be large differences. Certainly there might be some differences, but I would suspect that overall most of the cost drivers would be similar in a number of other countries.

Mr. Bryan Hayes: Thank you.

I'd like to go back to your chart, "Country Regulatory and Management Measure Highlights", specific to escapes. I notice that Canada spoke to the escape response plan, but Norway intrigued me because it spoke to the "technical specifications for cage and mooring designs".

I'm wondering if there has been any comparative analysis on the escapes in one country versus another. For example, does a technical design result in fewer escapes? It just seems an obvious question.

● (1635)

Mr. Guy Beaupré: I'll start, and then Jamie can pursue it.

Generally, I think, on an issue like escape and sea lice, which are the two main issues we face in aquaculture, in all of these countries—except maybe the United States, because the scale of their production is smaller—we're in continuous discussions or exchanges of information on what we do to prevent escapes, what we do when escapes happen, and where we are on sea lice, for example.

So even though the terminology might be a little bit different, I think fundamentally we're going in the same direction on those particular issues. If a country has found a technical specification for a cage that would help prevent escapes, we would know about it and we would try to implement it as well. It's not in any of our interests not to deal with escapes or sea lice at any point in time. And it's certainly not in the interests of the industry, because it's their investment.

Mr. James Smith: Just to add to that a bit, each of the countries, and the provinces in Canada, that have net-pen salmon aquaculture have codes of containment. The technical specifications, such as the breaking strength of different mesh sizes of net, are actually very similar between each of those codes of containment.

All of those codes of containment cover the technical specifications. They have monitoring components to them. They have inspection components to them. They have recapture specifications or components to them. All of those are tied together to be consistent with the guidelines for containment that are part of the Williamsburg resolution that Guy spoke to earlier.

More specifically on the technical specifications, there's an effort going on right now under the ISO umbrella, a group called ISO/TC 234, which is developing ISO standards for fisheries and aquaculture. We are active participants in that. A component of that group actually is looking at technical specifications for net-pen facilities specifically related to containment.

So that effort is being done under the ISO umbrella to bring that very clear consistency between all of the countries. Canada's involved with that, as are Norway, Scotland, and other countries as well. That work is proceeding along through the ISO process, which is cumbersome but is actually making some good progress.

The Chair: Thank you very much.

Oh, sorry, Mr. Beaupré, go ahead.

Mr. Guy Beaupré: I just wanted to say that with sea lice it's slightly different, because they react differently to water temperature. In Norway, where the temperature of the water is colder, they currently have less sea lice than we do. On the west coast, we haven't seen the same number of sea lice outbreaks as on the east coast—in New Brunswick, for example, in recent years. In New Brunswick it was mainly related to the increasing water temperature.

So the conditions in the various areas would have an impact, of course.

The Chair: Thank you.

Mr. MacAulay.

Hon. Lawrence MacAulay: Thank you, Mr. Chairman.

Part of the government's strategic review includes focusing aquaculture science activities on issues for DFO's regulatory duties in relation to fish health and environmental interaction. This includes a reduction of $3 million from the budget. Could you comment on how this might affect regulation of open-net aquaculture? Will there be an effect on the science being produced and on recommendations being available for government?

Dr. Jay Parsons: The program that was affected in the recent budget changes, as I mentioned earlier, is the aquaculture collaborative research and development program, or ACRDP, a program within the science sector. It's one of two main programs we have. This program was first initiated in 2000 as part of the program for sustainable aquaculture. It's an industry-collaborative program in which proposals are made by industry and the work is undertaken collaboratively within the department.

Previously we had three main objectives under that program: best fish performance, optimal fish health, and improved environmental performance. It was just the best performance objective of the program that was eliminated. The collaborative work that we do under this program with industry on fish health and environmental performance issues remains, so I'm not expecting that there would be any decrease in the level of activity on those related aspects through that particular program.

In addition, in the funding the department received in 2008 under the new aquaculture program, there was a five-year funded program. One of the pillars under that program allowed us to establish what we call the “program for aquaculture regulatory research”. It's through this program that we undertake most of the science to support the regulatory policy decision-making needs of aquaculture management in the program. That program's funding continues for another year.

● (1640)

Hon. Lawrence MacAulay: So the best performance part of it would not be missed? Is that what you're telling us—

Dr. Jay Parsons: I'm saying that the best performance—

Hon. Lawrence MacAulay: —and also that the $3 million really was not needed there...?

Dr. Jay Parsons: It was a decision of the government to reduce the program, and for that particular element of the program, $2 million came out from the actual research component of the program, and the other million is a result of reductions in science capacity to undertake that research within the department.

Hon. Lawrence MacAulay: Thank you.

Mr. Alistair Struthers: Just to add to what Jay was saying there, under the aquaculture innovation market access program, production elements are still considered an eligible area of inquiry.

The Chair: Thank you very much.

I'd like to take this opportunity on behalf of the committee to thank you for taking the time today to come and meet with our committee and to answer the many questions our committee members have had. I really appreciate you taking the time. Thank you.

Committee members, we will take a short break while we prepare to move into committee business.

[*Proceedings continue in camera*]

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